

PROCEEDINGS
OF THE
BIOLOGICAL SOCIETY OF WASHINGTON

A LIST OF THE FISHES OF THE SENECA CREEK,
MONTGOMERY COUNTY, MARYLAND, REGION.*

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The present paper is based upon collections of fishes from the Chesapeake and Ohio canal near Rushville, Maryland, and from Little Seneca and Tenmile creeks near Boyds, Maryland, December 12 to 14, 1911. The authors accompanied one of the parties of the United States Bureau of Fisheries engaged in reclaiming the food fishes from the canal. This party seined a section of the canal about six miles in length from a point near Sycamore Island in the Potomac River up to Tenfoot Island. Large quantities of fish were hauled ashore with the seine and thousands of food fish which would have perished if left in the canal were carried over the bank and released in the Potomac River. As many of these were breeders, the fish supply of this section of the river was considerably augmented. Under these conditions, exceptional opportunities were afforded for gathering data as to the species occurring in this region and their relative abundance. Many of the fishes congregated in the deeper holes, especially in the basin or widewater in the canal above Rushville. About half a mile below Rushville, there is a lock locally known as Violett's Lock. A feeder from the river enters the canal below the lock, affording a means of ingress for the fishes of this section of the river. As the section above the lock is fed from a point much higher up and as the lock acts as a partial barrier, differences in the fauna of the two sections existed. Now that the fish from both sections are being released into this part of the river, these differences may

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disappear. In June and September, 1914, the junior author thoroughly seined a section of Little Seneca and Tenmile creeks, near Boyds, Maryland. These are branches of Seneca Creek, which empties into the Potomac River at Rushville.

Because of the proximity of the Seneca basin to the streams about Washington, D. C., the present paper may be of interest to those interested in the distribution of the species of this region. The list contains 34 species from the vicinity of Rushville, all but one being from the canal, and 19 species from Little Seneca and Tenmile creeks. Of the 41 species listed, 12 were common to the two regions, as follows :

| | |
|-------------------------|----------------------------|
| Schilbeodes insignis | Notropis photogenis amœnus |
| Catostomus commersonii | Hybopsis kentuckiensis |
| Hypentelium nigricans | Anguilla rostrata |
| Semotilus atromaculatus | Lepomis auritus |
| Pimephales notatus | Micropterus dolomieu |
| Notropis analostanus | Boleosoma olmstedii |

The following species were found only in Little Seneca and Tenmile creeks :

| | |
|-----------------------|------------------------|
| Semotilus corporalis | Rhinichthys atronasus |
| Notropis cornutus | Exoglossum maxillingua |
| Rhinichthys cataractæ | Etheostoma flabellare |
| Uranidea gracilis | |

Without exception, these species are characteristic of the smaller streams, usually inhabiting the swifter creeks and brooks.

McAtee and Weed (Proc. Biol. Soc. Washington, Vol. XXVIII, 1915, p. 6) list 27 species from the Chesapeake and Ohio canal between locks 11 and 12. Of these, all but four were taken in the section seined near Rushville and eleven additional species, as follows :

| | |
|--------------------------|------------------------|
| Ictalurus furcatus | Notropis procyne |
| Moxostoma macrolepidotum | Notropis analostanus |
| Carassius auratus | Hybopsis kentuckiensis |
| Hybognathus nuchalis | Fundulus diaphanus |
| Pimephales notatus | Percopsis omiscomaycus |
| Micropterus salmoides | |

Of these, *Moxostoma macrolepidotum* was very abundant and *Hybognathus nuchalis* and *Pimephales notatus* were common.

ANNOTATED LIST OF SPECIES.

SILURIDÆ.

1. **Ictalurus punctatus** (Rafinesque).

This species has been introduced into the Potomac River below Great Falls and is apparently rare above the falls. Among the fish seined from the canal, only a single example, 134 mm. long, was seen.

2. **Ictalurus furcatus** (Le Sueur).

A single example, 555 mm. long, was obtained in the canal above Violett's lock. The unusual conditions to which this specimen was exposed serves to illustrate the remarkable vitality of catfishes. It was captured about 10.00 A. M., December 13, carried in a cart without covering during the remainder of the day and in the evening placed in a live box filled with carp. On the morning of the 14th it was lying on top of the carp, out of the water, showing no signs of activity; on the morning of the 15th it was active. Being too large for our collecting cans, it was wrapped in a newspaper, packed in a grip and thus carried to Washington. In the afternoon, when unpacked, it appeared about as lively as when first captured.

3. **Ameiurus nebulosus** (Le Sueur).

Abundant in the canal.

4. **Schilbeodes insignis** (Richardson).

This species is common in Tenmile Creek, near Boyds, apparently being most abundant in the autumn. Examples up to 112 mm. in length were collected. In the canal four small examples were taken at a point below the lock, locally known as Buzzards Hole.

CATOSTOMIDÆ.

5. **Catostomus commersonii** (Lacépède).

Sparingly common in the canal. The young are common in Little Seneca and Tenmile creeks. Those taken in the creeks in June, 1914, may be arranged according to length into two groups, the first of specimens 27 to 35 mm. long and the second of specimens 80 to 165 mm. in length. The latter are believed to belong to the stock of the previous year.

6. **Hypentelium nigricans** (Le Sueur).

Adults were abundant in the canal and the species also occurs in abundance, especially the young, in Little Seneca and Tenmile creeks. On June 6, 1914, many examples ranging in length from 25 to 140 mm. were taken in the latter region.

7. **Erimyzon oblongus** (Mitchill).

Abundant in the canal. A male 330 mm. long had three tubercles on each side of snout. Color in life: back, brownish, crossed by nine blackish saddles of about width of three rows of scales; sides, brown with silvery and golden shades; belly, silvery white; body scales margined

with light golden color; fins, reddish, narrowly margined with dusky black; dorsal, caudal and anal with dusky mottlings. McAtee and Weed (Proc. Biol. Soc. Wash., Vol. XXVIII, 1915, p. 10) state that the species is rare in river and canal.

8. **Moxostoma macrolepidotum** (Le Sueur).

Very abundant in canal in this region. Three examples ranged in length from 238 to 355 mm.

CYPRINIDÆ.

9. **Cyprinus carpio** (Linnæus).

Common in the canal. Two of the largest were 650 and 800 mm. in length. This species is very tenacious of life if handled in such a manner that the gills are not injured, but bleeds to death very quickly, even from a slight abrasion. Carp seined from the canal were not returned to the river but were saved by the seiners for food, the most of them to be salted for winter use. Fish thus taken were carried in sacks in a wagon during the day and in the evening were packed in a live car placed in the bed of a small stream, some of them being above the water level. The number that died under this treatment was surprisingly small.

10. **Carassius auratus** (Linnæus).

Not uncommon in the canal. Of eight examples examined, the largest, 300 mm. in length, was black and dull orange. One was a uniform bright red, the others dusky silvery.

11. **Hybognathus nuchalis** Agassiz.

Common in the canal, the largest being 105 mm. in length.

12. **Semotilus corporalis** (Mitchill).

Common in Little Seneca and Tenmile Creeks.

13. **Semotilus atromaculatus** (Mitchill).

No examples were taken in the canal. Three, 93 to 163 mm. long, were seined in a small rivulet near the canal. In Little Seneca and Tenmile creeks, the species is abundant. Examples taken in June ranged in length from 50 to 115 mm., and small examples taken in September were 40 to 45 mm. long.

14. **Notemigonus crysoleucas** (Mitchill).

Abundant in canal, especially at a point locally known as Buzzards Hole; none taken in upper stretches of Seneca Creek.

15. **Pimephales notatus** (Rafinesque).

Common in the canal; abundant in Little Seneca and Tenmile creeks.

16. **Notropis procne** (Cope).

Apparently rare in the canal.

17. **Notropis hudsonius amarus** (Girard).

Abundant in the canal.

18. **Notropis analostanus** (Girard).

Apparently rare in the canal and in Little Seneca and Tenmile creeks.

19. **Notropis photogenis amœnus** (Abbott).

Very abundant in the canal, the largest being 92 mm. long. Two examples were taken in Tenmile Creek.

20. **Notropis cornutus** (Mitchill).

Abundant in Little Seneca and Tenmile creeks. Specimens taken in June ranged in length from 48 to 110 mm.

21. **Rhinichthys cataractæ** (Cuvier & Valenciennes).

Common in Little Seneca and Tenmile creeks. Examples taken in June may be grouped into two classes according to length, the first 24 to 27 mm. long, the second 66 to 82 mm. long.

22. **Rhinichthys atronasus** (Mitchill).

Abundant in Little Seneca and Tenmile creeks.

23. **Hybopsis kentuckiensis** (Rafinesque).

Several examples taken in the canal and in Tenmile Creek.

24. **Exoglossum maxillingua** (Le Sueur).

A single example taken in Tenmile Creek.

ANGUILLIDÆ.

25. **Anguilla rostrata** (Le Sueur).

Two examples from canal and one from Tenmile Creek.

DOROSOMATIDÆ.

26. **Dorosoma cepedianum** (Le Sueur).

Very abundant in the canal widewater above Rushville. Large schools were seen, more than a thousand adults being taken at a single haul of a 100 foot seine. The largest was 340 mm. long.

PŒCILIIDÆ.

27. **Fundulus diaphanus** (Le Sueur).

An adult taken in the canal below Violet's lock and a young example in a small pond above the lock.

PERCOPSIDÆ.

28. **Percopsis omiscomaycus** (Walbaum).

Very abundant in the canal at a point locally known as Buzzards Hole, the larger examples ranging in length from 85 to 126 mm. Although the canal was seined for a distance of about 6 miles above this point, no examples were taken at other points. The only other record for this species in the vicinity of Washington is that of Smith and Bean (Bull. U. S. Fish Com. for 1898, 1899, p. 185) from Rock Creek and Cabin John Run.

CENTRARCHIDÆ.

29. **Pomoxis annularis** Rafinesque.

Adults abundant in the canal widewater above Rushville. Over 1600 were rescued and liberated in the Potomac River. The largest one measured was 330 mm. long, but others which it is believed exceeded this length were seen. In over 100 examples examined the number of dorsal spines was 5 or 6, with two exceptions in which it was 7. McAtee and Weed (Proc. Biol. Soc. Wash., Vol. XXVIII, 1915, p. 12) state that this species and *P. sparoides* "are about equally common and occur both in the river and canal." Among the large number seined at this point, not a single example of the latter species was observed.

30. **Ambloplites rupestris** (Rafinesque).

Not uncommon in the canal. Examples from the point locally known as Buzzards Hole were of a very light silvery color, some of them showing scarcely any traces of black mottlings and with the size of the black opercular blotch greatly reduced. When placed in alcohol, these assumed the characteristic markings.

31. **Chænobryttus gulosus** (Cuvier & Valenciennes).

Abundant in the canal, more than 1,300 being rescued. Among those taken was an individual which appears to be a hybrid with *Lepomis gibbosus*. This has been described by the senior author (Copeia, No. 7, New York, June 20, 1914).

32. **Lepomis cyanellus** (Rafinesque).

Small examples abundant in the canal. This introduced species is rapidly gaining a foothold throughout the region about Washington, apparently preferring ponds, muddy, slow-moving streams, canals and the like.

33. **Lepomis auritus** (Linnæus).

Common in the canal and abundant in Little Seneca and Tennile creeks.

34. **Lepomis gibbosus** (Linnæus).

Common in the canal. Over 3,000 of the three species of *Lepomis* were rescued in this region.

35. **Micropterus dolomieu** (Lacépède).

Common in the canal below Violett's lock, but greatly outnumbered above the lock by *M. salmoides*. According to local fishermen *dolomieu* greatly outnumbers *salmonoides* in the Potomac along this stretch of the canal, while farther up the river, below Harpers Ferry, the reverse is true. The feeder from the Potomac enters the canal below the lock and the small-mouthed bass may have entered in this manner, while above the lock the fish entered through a feeder from a point much higher up, where the large-mouthed bass predominates. Now that both species are being liberated in the Potomac in this region, this condition may be changed. Two examples were taken in Tennile creek.

36. **Micropterus salmoides** (Lacépède).

Common in the canal above Violet's lock. As fast as the food fishes were seined from the canal, they were carried over the bank in buckets and liberated in the Potomac. One large bass, when released from the bucket in company with other varieties, instead of darting out into the river, seized and swallowed head foremost a small crappie which had been carried over with it. The fish did this within a few feet of the person releasing it. Over 1,100 bass (two species) were rescued from this section of the canal, many being adults.

PERCIDÆ.

37. **Perca flavescens** (Mitchill).

Not uncommon in the canal, mostly small.

38. **Boleosoma olmstedii** (Storer)

Not uncommon in the canal and in Little Seneca and Tenmile creeks.

39. **Etheostoma flabellare** (Rafinesque).

Abundant in the Little Seneca and Tenmile creeks.

SERRANIDÆ.

40. **Morone americana** (Gmelin).

Common and of large size in the canal widewater above Rushville. Over 600 were rescued.

COTTIDÆ.

41. **Uranidea gracilis** (Heckel).

Abundant in the upper waters of Little Seneca and Tenmile creeks. Specimens taken in June ranged in length from 22 to 85 mm.